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Case Report

Facet joint septic arthritis due to community acquired methicillin resistant *Staphylococcus aureus* (MRSA) – A case report

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ABSTRACT

Septic arthritis of facet joint (SAFJ) is extremely rare. Only about sixty cases have been reported so far. A single case of SAFJ in a series of 491 cases of spinal infections was first reported by David-Chaussé in 1981. A case report of SAFJ was published by Halpin in 1987. With the growing availability and use of MRI, more and more cases are being reported. The most common organism that causes SAFJ is *Staphylococcus aureus*. We are reporting a case of SAFJ caused by community acquired, methicillin resistant *S aureus* (MRSA) successfully treated by Linezolid.

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1. Case report

Twenty one year old male patient developed low back pain due to minor trauma while playing football, two months prior to his visit to our institution. As the pain was minor, he did not take any treatment. Two weeks later he developed an abscess over the left knee with high grade fever, following which his back pain worsened. Pain was more on the right side with radiation to right lower limb. He was treated by a general practitioner with antipyretics and Amoxicillin and Cloxacillin 500 mg each 8 hourly for 5 days. Total count was 13,200/cmm with 70% polymorphs. ESR was 47 mm in the first hour. The abscess on the knee was drained. As the symptoms persisted after 5 days, antibiotic was changed to Gatifloxacin 400 mg once daily for 5 days. Bacterial culture was not done at this time. With this treatment the abscess healed and fever subsided, but back pain persisted.

He presented at our institution four weeks later with pain over the right side of lower lumbar region. Pain was more at night, and he was not febrile. There was radiation of pain to the back of right thigh, but there were no neurological symptoms. Examination showed no local rise of temperature or redness. There was paraspinal tenderness over the right side of lower lumbar spine. Movements of the lumbar spine were moderately restricted. Straight leg raising test was positive on the right side at 500. There were no neurological findings.

Total count was 7200/cmm with 55% polymorphs. CRP was 9 mg. ESR was 41 mm. There was no evidence of any immune deficiency. Blood culture was negative. His X-rays showed erosion of L4/5 facet joint of right side (Fig. 1A & B). MRI

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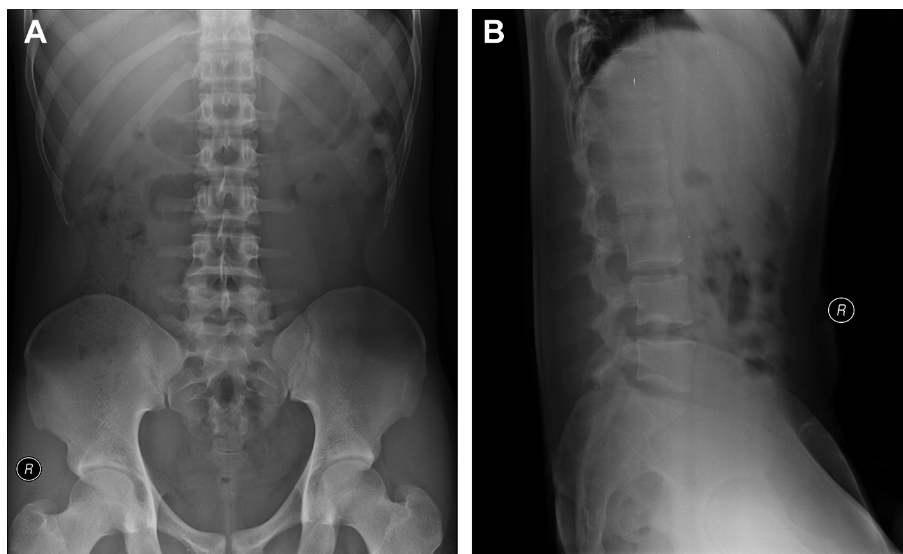

Fig. 1 – A & B: Antero posterior view and lateral view of the lumbosacral spine showing erotion of L4/L5 facet joint on the right side.

showed irregularity and destruction of articular cartilage and the widening of joint space of the L4/5 facet joint on the right side, with intra-articular and extra-articular altered signal intensity lesion (T1 isointense and T2 and STIR hyper-intensity) which had heterogeneous post-contrast enhancement. Anteromedially there was intra-spinal, extra-dural extension producing compression on the thecal sac and right L4 nerve root. Altered signal intensity was seen in the superior articular process, lamina, transverse process and pedicle of L4 on the right side. There was no involvement of vertebral body. Alternate signal intensity was also noted in the adjacent paraspinal muscles. MRI findings were suggestive of septic arthritis of right L4/5 facet joint with adjacent epidural abscess and paraspinal oedema.

C-arm guided aspiration of the facet joint was done. About 2.5 ml of purulent material was aspirated. Aerobic culture of the aspirate yielded *S. aureus*, sensitive only to Vancomycin and Linezolid. Histopathologic examination showed acute inflammatory reaction. As he was found to be allergic to Vancomycin he was treated by oral Linezolid 600 mg twice daily for 14 days. Patient became completely asymptomatic by the end of treatment and the blood parameters returned to normal. He made full functional recovery. Follow up X-ray at 3 months showed healing and all the blood parameters were normal. As he was totally asymptomatic he denied permission for follow up MRI. At 6 months and 18 months follow up, he remained asymptomatic with full range of movements.

2. Discussion

Spinal infections can be pyogenic (bacterial), granulomatous (*Mycobacterium tuberculosis* or fungal) or parasitic (Echinococcosis). Pyogenic spinal infection can be classified into spondylitis, discitis, spondylodiscitis, septic arthritis of the facet joints (pyogenic facet arthropathy), and epidural abscess.[3] Facet joint is a rare site of septic arthritis. About sixty cases have been reported so far. Vast majority of these reports are single case reports.[2,4–8] Only few reports have case series.[9–12] 0.2–4% of spinal infections is estimated to be facet joint infections.[1,4,10] But incidence is likely to be higher as many cases are likely to be misdiagnosed due to the rarity of the disease and also because of the self limiting nature of the disease in most patients. Mean age of the patients reported is about 60 years.[9,11] However, facet joint septic arthritis in children has been reported.[13–15]

Hematogenous route of infection is the most common. Facet joint septic arthritis due to central venous lines[16] facet joint injections[17,18] and acupuncture[19] has been reported. Acute septic arthritis is the type of presentation in majority of cases reported so far. Lumbar spine is the most common site of involvement. One patient with thoracic level involvement[6] and three patients with cervical involvement have been reported.[11] Bilateral facet joint septic arthritis has been reported.[20] Multifocal involvement is rare.[21] Occurrence of paraspinal abscess has been reported.[4] Occurrence of both epidural abscess and paraspinal abscess together also has been reported.[22] Other associations reported were endocarditis[22,23] and sternoclavicular joint involvement.[21] *S. aureus* is the most commonly reported organism.[9,21,23] Yersenia pseudotuberculosis,[4] Propionibacterium acnes,[24] Bacteroides sp.,[25] Streptococcus agalactiae[26] and Klebsiella pneumaoniae[27] have also been reported as causative organisms. Polybacterial SAFJ has been reported.[28]

Blood cultures are rarely positive. Diagnosis depends on clinical examination, MRI and positive culture from the aspirate of infected area. Majority of the reported cases have responded favourably to non-operative treatment with antibiotics. Rarely surgical evacuation and decompression may be indicated either due to failure of antibiotic treatment or due to neurological compromise especially in presence of epidural abscess.

S. aureus is one of the most common causes of musculoskeletal infections. In USA, 90,000 deaths per year are attributed to MRSA infections, which is more than AIDS.[29] In the pre-antibiotic era, *S. aureus* infections were often fatal. Penicillin

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